

CHEMICAL REACTION OF NERVOUS ORGANS.—R. Gscheidlen (*Pflueger's Archiv.*, VIII., 1873, 171) gives an account of experiments as to the chemical reaction of the central nervous organs. He employed for this purpose gypsum or clay plates, prepared with litmus.

The gray substance of the brain gave always an acid reaction; the white a neutral or weak alkaline one. The results were identical, no matter whether the animal had been killed or was yet alive, as was the case in some of his experiments. The gray and white matter of the cord, and the ganglia and nerve fibres reacted in the same manner; but heat changed the reaction, in the white substance, to acid, in all parts of the nerve centres.

By analysis, measurable quantities of lactate of lime were obtained from the gray substance of the brain of animals, and traces of the same in the medullary substance.

REACTION OF THE SENSORY NERVES.—A. Heinzmann (*Pflueger's Archiv.*, 1873, 222) discusses the question as to whether the sensible nerves react to very gradual alterations in the strength of the irritation. From his experiments with thermal irritants, it would seem that the sensible nerves, like the motor, fail to react under very gradual alterations of the exciting force.

b.—PATHOLOGY OF THE NERVOUS SYSTEM AND MIND, AND PATHOLOGICAL ANATOMY.

PARALYSIS OF TUBERCULOUS MENINGITIS.—The *Gaz. des Hopitaux*, Jan. 15, 1873, contains the following conclusions of a work on the paralysis of tuberculous meningitis, by Dr. H. Rendu. Paris: A. Delahaye.

1. The paralyzes which occur in the course of tuberculous meningitis are nearly always among the later accidents of the second period, and frequently the ultimate complications. In a clinical point of view, they may be divided into transient and permanent paralyzes.

2. The transient paralyzes are nearly always preceded by violent convulsions. In their locality, progress and duration they are governed by no fixed rule.

3. The permanent paralyzes, on the other hand, whether complete or incomplete (the latter are the most frequent), are sometimes preceded by slight convulsive twitchings, generally of no great violence, and sometimes supervene gradually in the midst of a progressive coma. They occur usually on one side of the body; they may be either general or partial, invading at the same time the members and several cranial nerves. There frequently exist relations of succession and coincidence between these paralyzes and other troubles of motility, such as convulsions and contractions.

4. The sensibility is nearly always simultaneously affected—rarely under

the form of hyperæsthesia—ordinarily as anæsthesia, more or less pronounced. The alterations of sensibility, however, do not exactly correspond with those of movement; and the reflex sensibility is very little modified.

5. The *post-mortem* examination only shows constant lesions where the paralysis was of the most permanent form; the transient and the ultimate paralyzes are not characterized by any particular alteration.

6. Neither the presence of disseminated granulations in the meninges, nor the existence of a liquid effusion in the ventricles, are sufficient to produce the paralysis.

7. There is, on the contrary, a constant relation between the paralysis and the amount of the exudation which takes place at the base of the brain, especially towards the origin of the fissures of Sylvius; but this alone cannot directly provoke it.

8. There is nearly always to be found, in the nervous centres of paralytic subjects, either *foyers* of softening, or of capillary apoplexy, or cerebral tubercles. These lesions are located indifferently in all parts of the brain, but are particularly grouped at the level of the corpora striata, the optic thalami, and the cerebral peduncles.

9. The *foyers* of softening are themselves the consequence of the obliteration of the arteries by fibrinous exudation. They present rather the characters of necrobiosis than of encephalitis; they seem therefore to be allied to the patches of white softening, consecutive to arterial atheroma.

RENAL LESIONS FOLLOWING CEREBRAL HÆMORRHAGES.—Dr. A. Ollivier (*Archiv Generales de Med.*, Feb., 1874) publishes a series of clinical observations and physiological experiments in regard to the dependence of renal congestions and apoplexies on cerebral hæmorrhages. In his experiments, which were made on rabbits, he endeavored to reproduce the conditions which he found in his observations of his human patients; they are therefore the complement to the latter. He was able, by lacerating the cerebral substance in one hemisphere, to produce congestion and albuminuria in the kidney of the corresponding side; and by causing a meningeal hæmorrhage of the superior longitudinal sinus, to establish a bilateral congestion with albuminuria. By making a puncture in the lateral half of the floor of the fourth ventricle, either an unilateral congestion was produced or a bilateral one, but most pronounced in the kidney of the side corresponding to the cerebral lesion.

Dr. Ollivier rapidly reviews his clinical observations as follows:

“The hæmorrhage, with only a single exception, had always for its point of departure the left hemisphere, and generally the parts adjoining the fissure of Sylvius. It was constantly accompanied by a slight subarachnoid sanguine effusion over the surface of the neighboring convolutions.

“In all the cases, the corpus opto-striata was either destroyed or almost separated from the encephalon by the clot. The clot was always of considerable size, its anterior border either extended to the peduncles or the superior part of the protuberance, or with a circumscribed clot in the corpus opto-striata there existed disseminated *foyers* in the peduncles, or the protu-

berance. There was found, moreover, in all cases, either a laceration of the septum lucidum, a distention or laceration of the ventricular walls, or the aqueduct of Sylvius was found filled with blood.

"It will be observed therefore, from these facts, that the albuminuria may follow not only hæmorrhage in the protuberance, but also that in other parts of the encephalon.

"Albuminuria of cerebral origin is much more frequent than is at present believed; and I do not doubt that new researches will reveal many examples. In the present actual state of our knowledge it is not yet possible to fix with precision, from the symptoms, the location of a cerebral hæmorrhage. Nevertheless, in the cases where the signs of a lesion of the protuberance are wanting, we may say that the presence of albumen in the urine indicates, perhaps, a *foyer* situated at the base of the brain, or perhaps an extensive hæmorrhage compressing the base. In all cases it seems to be, from the facts I relate, a prognostic sign of very grave significance."

MORBID CHANGES OF THE CORD.—M. G. Hayem, in a note presented at the session of the French Academy, Jan. 26, by M. Cl. Bernard (reported in *Gaz. Med. de Paris*, Feb. 7), thus sums up the conclusions drawn from his experiments on the changes of the spinal cord in rabbits, produced by rupture, or resection of the sciatic nerve.

1. The rupture of the sciatic nerve in the rabbit is followed by a cicatricial myelitis, which may be the point of departure for a kind of general central myelitis.

2. The principal character of this alteration of the gray substance of the cord consists in an atrophic degeneration of the nervous cells.

3. This kind of myelitis, which appears to be the rule when the animal is allowed to survive after rupture of the nerve, may likewise follow in a case of simple resection.

These experimental facts may be applied to human pathology, and important conclusions drawn from them. I can only indicate here the principal ones:

1. The propagation to all the gray matter of an irritation affecting, primarily, only a limited portion of the cord (rupture of the nerve), enables us to understand the numerous clinical observations in which a wound, or a contusion of the cord, or any limited lesion whatever, has been the point of departure of an acute subacute, or chronic central myelitis. [Some of my animals experimented upon died at the end of five or six days, with perhaps a generalized central myelitis. Unfortunately they were not examined with this point in view; but a cat in which I ruptured a cervical nerve, died in a few days of an acute myelitis.]

2. The possibility of causing at will, so to speak, a central myelitis in animals, shows that this kind of alteration, characterized especially by a more or less rapid atrophy of the nervous cells, is truly of an irritative nature; and that there really exists, besides the interstitial forms, a parenchymatous myelitis, which, in the gray substance, attacks in a special manner the nervous element itself. One may therefore study at leisure the degener-

ation and atrophy of nervous cells. [I may here say that, in my experiments, I did not obtain the pigmentary degeneration of cells, which, according to the published observations, particularly those of Lockhart Clark, and M. Charcot, appears to be the most frequent alteration in man.]

3. From these experiments we see that the central myelitis has an invincible tendency to generalize itself, that from a single point of the gray matter it extends to the corresponding point on the opposite side, and through the whole cord as far as the nuclei in the medulla oblongata. These peculiarities are in accord with the invading, progressive march of central diseases of the cord, such as is seen in clinical observations.

4. The rapid atrophy of the muscles observed in animals suffering from lesions of the cord, shows, in a manner altogether new, the trophic influence of the cells of the spinal cord. These facts also appear to me to be of very great importance in the point of view of the atrophic paralysis of infancy and age, and of progressive muscular atrophy.

5. The experiment relative to the resection of the sciatic nerve, by establishing the fact that a traumatic irritation of a nerve may be propagated into the gray matter of the cord, producing a parenchymatous myelitis with cellular atrophy, explains very clearly the observation which M. Dumenil has published under the name of "ascending neuritis," and in which that distinguished observer has erroneously inferred, in order to explain a progressive muscular atrophy consecutive to contusion of the sciatic, multiple lesions of peripheral nerves converging separately toward the special centre.

6. Finally, these experiments, as a whole, establish, in a general manner, that irritations of the white portions of the nervous system (bundles, roots, and nerves), may extend to the gray matter, and there give rise to generalized and diffuse lesions, and so explain, experimentally, the clinical relations between the greater part of the chronic affections of the nervous system, particularly the fascicular sclerosis and progressive muscular atrophy, relations which have especially been brought forward before the world by M. Charcot and his assistants.

NEW FORM OF PROGRESSIVE MUSCULAR ATROPHY.—M. Charcot gave at the session of the *Soc. de Biologie*, Jan. 3 (reported in *Rev. Scientifique*), an account of a new form of disease. It is a sclerosis, primitive and symmetrical, which affects a portion of the lateral bundles of the spinal cord. It may at the same time affect the medulla, or the cord; is characterized especially by trophic troubles; by its symptoms it is allied to the provisional group of progressive muscular atrophies, and has their usual clinical history.

When the medulla is affected, there is a glosso-labio-laryngeal paralysis; and the increase of the pulse and the respiratory troubles indicate that the origin of the pneumogastric is involved.

A differential diagnosis of this affection from the other forms of progressive muscular atrophy, is difficult; but in them the weakness is generally proportional to the damage to the muscular tissue, while in this disease of Charcot paralysis is among the first symptoms, the fibrillary contractions, the emaciation, and the deformities, follow later.

As regards the pathogeny of this affection, M. Charcot has established it by observing, at the same time with the primitive sclerosis of a part of the lateral bundles, the destruction of the cells of the anterior gray horns. M. Charcot explains the violence of the affection by considering the inflammation to be propagated along the nervous fibres leading out from the anterior cornua.

APHASIA.—M. Troisier, at a recent *seance* of the *Soc. de Biologie* (Jan. 3), reported in *Rev. Scientifique*, offered some remarks on a case of aphasia, which are of interest. At a previous meeting he had exhibited the brain of an aphasic woman who had died of cerebral softening. The lesion had destroyed parts of the sphenoidal and occipital lobes, while the frontal convolutions, and those of the Island of Reil remained intact. M. Bouchard demanded at the time that a section should be made to determine whether or not the fibres from the third convolution remained unaltered. M. Troisier, therefore, had made the examination, and the fibres were found intact.

In the discussion which followed, M. Magnan recalled the fact that he had, in 1864, published an account of a case of aphasia due to cerebral hæmorrhage, taking place in the left sphenoidal lobe.

SOFTENING OF THE BRAIN IN INFANTS.—M. J. Parrot (*Arch. de Phys.*; abstr. in *Gaz. Med. de Paris*, Dec. 13, 1873)—In the new-born infant, noncadaveric softening of the encephalon is only the last stage of cerebral steatosis. The *foyers* of softening are multiple, and are almost exclusively confined to the hemispheric centres near the latter ventricles, more especially in the posterior portion. Only in one instance did M. Parrot observe the alteration to extend to the convolutions, and once in the lenticular core of the corpus striatum. The softened portion, in this case, instead of being white, presented a brownish appearance, due to a mixture of blood or of hæmatosine. Histologically, the altered tissues differ from those which have undergone a steatose degeneration only by the separation of a great number of granular particles. This softening may be met with in the fœtus, and also in infants of several months, or years, of age. In these last cases, the commencement of the morbid process may be dated at very near the time of birth.

M. Parrot is disposed to consider, as the *reliquæ* of softening, certain alterations which have, up to the present time, been variously interpreted, certain hydrocephali for example: the nervous matter disappearing, its place is filled by liquid, the secretion of which, continuing, causes dilatation of the ventricles. He explains, also, by an anterior softening, the lesions which Cazanvielh has classed among the cases of cerebral *agenesis*, and which Duges, Lallemand, and Cotard, have regarded as the product of encephalitis.

When the lesion is old and extensive, it may cause a secondary degeneration of the protuberance of the medulla, and of the cord.

This softening of the brain in the new-born, does not generally manifest itself by symptoms which can be recognized during life.

CONGESTION OF KIDNEYS FROM CEREBRAL LESIONS.—M. Carville communicated to the *Société de Biologie*, Jan. 31 (reported in *Rev. Scientifique*), that in injuring the white fibres situated just outside of the extra ventricular nucleus of the corpus striatum, he had produced a decided congestion of the kidney of the corresponding side, and in some cases, a hæmorrhage ensued, revealed by the sanguinolent tinge of the urine. These experiments confirm the remarkable results of M. Ollivier, as to the determination of symmetrical lesions of the kidneys by injuries to the encephalon.

O. KOHLS (Berliner Klin. Wochenschr., 1873, Nos. 24-27; abstr. in *Obl.*) gives the observations made by himself on the influence of fear in the production of disease, during the bombardment of Strasburg. A great variety of diseases were evidently either produced, or greatly aggravated, by sudden fright from various causes during the siege. He reports, among the affections of the central nervous system, three cases of paralysis agitans, two women and one man; three cases of spinal paralysis; and the case of a man, who, though deformed by a spinal curvature since his youth, was yet in fair health, till, from a sudden fright, a paralysis of the left leg ensued, lasting until his death, three years later, from a lung affection. There were also noticed affections of the genital system, suppression of the menses, and abortions; and one case of angina pectoris, following the shock of sudden fright in a healthy person.

Affections of the respiratory apparatus were notably aggravated; and the first appearance of hæmoptysis in consumptives was often dated at the occurrence of a sudden terror from the events of the bombardment.

Among a great many cases of stomachal and intestinal catarrh, the author observed three cases of icterus catarrhalis, which were all due to this cause, following the shock almost immediately.

One case of affection of the joints is given, and is of interest. The patient, hitherto a sound man, was, by the explosion of a shell near by, rendered speechless, and trembling for several hours, and immediately noticed a painful swelling of the hand and knee joints, with stiffness of the right index finger, which lasted for a considerable period, though somewhat bettered. A similar case is mentioned of a man who, through similar causes, in Paris, in 1848, became paralyzed on the right side, with swelling of the joints of the hand and feet. Twenty-five years subsequently (1873), there still existed tremor of the upper extremity, with swelling of the right finger and wrist joints, which gave the feeling of crepitation on pressure.

INSANITY FOLLOWING ACUTE DISEASES.—Dr. J. Christian (*Arch. de Med.*, Sept. and Oct., 1873; abstr. in *Rev. des Sci. Med.*)—Insanity may succeed acute diseases in two different ways:

Directly: When it comes on after a disease, without the intermediation of any new pathological accident.

Indirectly: When it only appears as due to irremediable lesions of the

brain or meninges, supervening as complications of the primary disease (meningitis, encephalitis, tumors, hæmorrhage, etc).

The author sets to one side the last class of cases, and, among others, the general paralysis which sometimes follows an acute malady.

The forms of mental alienation which succeed acute diseases are very variable; mania and stupor are most frequent; still, we may see in the same patient, agitation, alternating with stupor or with hypochondriac delirium, etc. Sometimes there is nothing more than a trace of insanity, characterized only by a few insane ideas, or some isolated hallucinations.

Dr. Christian calls attention, principally, to a series of facts scarcely noticed, and which are only observed after acute maladies; those where the mental disturbance is accompanied with various troubles of motility. He cites a certain number of observations taken from different works.

These intellectual disorders, produced at the same time with disorders of motility, may cause a diagnosis of general paralysis, or some other severe affection, when only a transitory disturbance really exists. Ataxy of the movements, ambitious delirium, and intellectual weakness, are, in fact, phenomena common to general paralysis, and to the mental and locomotor disorders which may supervene after an acute disease. But in this last case, these accidents appear in a secondary manner, have a rapid progress, and follow an acute disease. It will be equally easy to distinguish the delirium of alcohol, traumatic causes, or of toxic influences, by the cause which has produced them.

As to the diagnosis between the vesanic and the sympathetic delirium, it is sometimes difficult to distinguish them on their external characters alone. For example, the symptomatic delirium is systematized as in the insane: Sometimes a typhoid fever may be accompanied with religious delirium and hallucinations of sight and hearing; and certain such fevers may be taken for and treated as insanity; the stupor of this disease may be confounded with that due to mental alienation (*Ann. Med. Psych.*, 1872, *Dagonet*); nevertheless, we may say, that the vesanic delirium is recognizable when its appearance coincides with the amendment of the febrile symptoms, and the general condition.

As to the delirium supervening in convalescence, it is ordinarily easy to be distinguished from that due to any complication whatever (meningitis, etc).

The prognosis of insanity following acute maladies cannot be made with absolute certainty; death is an exceptional termination; but the passage into the chronic and incurable state has been observed. Sometimes, says Griesinger, the delirium following a typhoid fever changes into a mania and profound dementia. M. Behier has seen in these circumstances the dementia prolonged for a year and over; in a general way, the prognosis should be reserved, since a first attack of insanity always establishes a predisposition to further attacks.

The delirium ordinarily comes on suddenly and unattended; but sometimes it is preceded by certain prodromata (inquietude, change of character and irritability, insomnia, etc). In eighty-one patients, the duration of the delirium was from thirty-seven hours to fifteen days; in six, from fifteen days to one month; and in nineteen, from one to three months. Recovery is the usual termination, and is commonly sudden and rapid.

Like the paralysis after acute disease, the mental disturbance is either precocious or tardy; that is, it appears during the evolution of the malady, or is developed only after convalescence.

To explain the cause of these mental disorders, there have alternately been suggested congestion and anæmia of the brain, the influence of alterations of the blood, etc. According to the author, all the acute maladies have a common point of resemblance, and are translated by a peripheral irritation. This acting on the brain may produce insanity by reflex action (?) It is the same with it as in the reflex paralyses, which, according to Brown-Sequard, are produced by the reflexion of peripheral impressions on the spinal vaso-motor nerves, and the consequent abolition of the physiological properties of the cord. The peripheral impression may similarly be reflected on the intra-cerebral, vaso-motor nerves, and cause circulatory disturbances, giving rise to the cerebral disorders subsequent to acute maladies.

The treatment does not differ from that for other forms of insanity, and only includes, as a special indication, the care of the accessory lesions, produced by the acute disease (congestion, anæmia, etc).

PRODROMAL STAGE IN CHOREA. — Dr. Aug. Schmitt (*Memorabilien* XVIII., 3 hft.; abstr. in *Rev. des Sci. Medicales*) — This period, says the author, often escapes the observation of the physician, who is only consulted, in most cases, when the disease is confirmed. The period is characterized by disturbances confirmatory of the opinion of Dr. Betz, who sees in chorea an affection of the central nervous system, particularly of the cord and its envelopes. These disturbances are chiefly those of spinal irritation. Pain may be caused by pressure of the spinous apophyses, especially in the dorsal and lumbar regions, and at the level of a varying number of vertebrae. The patient also suffers from rheumatic pains in the shoulder and the nucha, and from headaches, always much less pronounced; from itchings at the arms, and the orifices of the nasal fossa, which may suggest a suspicion of worms. There are signs of irritation of the nerves of the heart; a general lassitude; a kind of uncertainty in progression. Sometimes the patient sees flashes of light. It is impossible to read, or to look long at objects. The nights are passed without satisfactory sleep, and are disturbed by painful dreams. Sometimes, during the day, the patients are seized with violent terrors, without any reason.

In one case, this prodromic period lasted sixteen hours.

These prodromata are certainly due to anæmia, which itself may be caused by tuberculosis, scrofula, lack of alimentation, or the establishment of menstruation.

Dr. Schmitt finds in the part played by anæmia, the indication for the treatment to be applied in this period. He does not content himself with ordering frictions on the back, with an ointment of opium and oxide of zinc, but he particularly prescribes the preparations of iron, and a tonic regimen.

STAMMERING.—Dr. H. Folet (*Ann. de la Soc. Med. Chir. de Liege*, 1873, pp. 229 and 309; abstr. in *Revue des Sci. Med.*)—The author seeks to find, in the examination of the symptom of stammering, what is the nature of the vocal trouble, and concludes that it is due to convulsions, which happen only at the moment of phonation. He compares these functional convulsions to others of the same order, such as writer's cramp.

The vocal muscles, endowed with all their power, only become inapt to exercise it when the will puts them in action. The cause, therefore, does not reside in the muscles, but in that point of the nervous centres corresponding to the origin of the nerves which supply the affected groups of muscles; that is, there is an original nervous trouble, very probably in the central part of the medulla. The intimate nature of the nervous lesion is unknown; the author believes it to be only temporary and transient; analogous to the unknown lesions of hysteria, chorea, etc.

In an appendix the author states that there are functional paralyses, as well as functional convulsions; he is inclined to think that glosso labio-laryngeal paralysis is the one which corresponds to the convulsion which produces stammering.

EPILEPSY.—*Remarks on Colored Vision preceding the Seizures.* By Dr. Hughlings Jackson. It is said that, in cases of color-blindness from disease, red is, in most cases, the first color to go; and that the further progress in loss of color-sight is towards the violet end of the spectrum. [In the great majority of cases of congenital color-blindness, red is the fundamental color not seen. All people are red-blind in the most peripheral parts of the retina, and more extensively so to its nasal side.] Loss of power to see colors is one of the sensory analogues of palsy of muscles (motor nerves). Now, just as palsies have their mobile opposite in spasm, so, in opposition to loss of color-sight, there are cases of development of colored vision. Of course, the physiological comparison is, strictly speaking, betwixt excitations in motor and sensory nerves. Thus, occasionally a patient, who is subject to epileptic or epileptiform seizures, may have, as a first symptom (so-called aura), a color, or "all manner of colors," before his eyes. It is well, when the patient is intelligent, to ask which color is first developed, and the order in which they come. Theoretically, one would expect that the first color to be developed would be red, because it is the one first lost in cases of color-blindness. For, returning to paralytic symptoms for an analogy, we find that those very movements which are first lost in destruction of nervous organs, are those which are first developed in epileptic discharges of nervous organs. Dr. Hughlings Jackson thinks, so far as limited and recent inquiries enable him to judge, that red is usually the color first developed when color-development is a "warning" of an epileptic seizure. It is not always so; one of his patients has blue vision before severe epileptic fits; and she has had attacks of the blue vision, followed by temporary and complete darkness, without anything further. [Blue, according to Maxwell, is the fundamental color most removed from red. Helmholtz adopts the theory of Thomas Young, that the three fundamental colors are red, green, and violet]. To ask patients to note the order of development of colors, would, how-

ever, avail little in the majority of cases; probably there is, in most cases, a development of color, rapidly becoming complex ("rainbow").—*Brit. Med. Jour.*, Feb. 7.

After-Effects of Epileptic Discharges.—After epileptic spasm of muscles, if the spasm be severe enough, there is paralysis; as, for instance, in epileptic hemiplegia. Is there loss of power to see a color, after strong and continued development of that color? Dr. Hughlings Jackson has had no opportunity of testing this. It is important to note the after-effects—the "paralyzing effects"—of strong epileptic discharges. The presumption is, that strong discharges temporarily paralyze much of the centre in or through which the discharge spreads. For example, epileptic hemiplegia is probably the result of temporary paralysis of the corpus striatum, the centre discharged through.

There is no subject in the inquiry into epilepsy more important than the after-effects of epileptic discharges. Dr. Hughlings Jackson believes that, in epileptic mania, the maniacal phenomena occur when the discharge has ceased; the discharge leaves the highest sensori-motor processes *hors du combat* (there is loss of consciousness). The mania he attributes to action of processes more automatic; they act uncontrolled; they are not "inhibited." By an epileptic discharge the patient is "reduced" to a more automatic condition of mind; just as in hemiplegia the patient is reduced to a more automatic condition of gross movement; and as in epileptic aphasia the patient is reduced to a more automatic condition of speech. In so-called masked epilepsy, he believes there is, at the outset, a transitory and unobserved fit. He does not believe that an attack of mania replaces an epileptic paroxysm.—*Ibid.*

Systemic Sensations in Epilepsies.—The order of frequency in which the higher senses suffer in epilepsies is, Dr. Hughlings Jackson believes, sight, smell, hearing. An aura of taste is very rare; a "sting," or other non-gustatory aura, from the tongue, is not so uncommon. It is not easy to say where touch comes.

In our investigation of epilepsies, we must not pass over those sensations which Lewes calls systemic sensations, and which Bain calls organic sensations. Speaking of the error of restricting sensations to the reactions of the five senses, Lewes says: "Physiology teaches us that there is another, and, indeed, far more important class of sensations, arising from what I have proposed to call the systemic senses, because, distributed through the system at large, instead of being localized in the eye, ear, tongue, etc., they make up the greater part of that continuous stream of sentience on which each external stimulus raises a ripple." It is probable that the aura from the neighborhood of the epigastrium (sensation referred there, that is) is a crude and excessive development of visceral and other systemic sensations. However, if so, it seems strange that these sensations should, as is most common, occur in those cases of epilepsy in which loss of consciousness is, next to such warning, the first event in the paroxysm. For it implies that systemic sensations are first and most represented in the highest processes. Epilepsy, in which loss of consciousness is the first, or one of the first, events, is often preceded not only by development of systemic sensations, but is attended by pallor of the face. Indeed, the experiments of disease seem to show that

the very highest processes (those underlying consciousness), sum up and represent all lower processes of the body. The epigastric sensation, so-called, "aura," is variously described by patients. Some speak of it as a "fear." A woman, nineteen years of age, said it was "a frightened feeling: as if I had done something wrong." Another patient said, it was "an indescribable feeling of horror." Women at the change of life, and other persons, will complain that they feel depressed, and as if they had done something wrong; and when asked the seemingly ludicrous question, "Where do you feel it?" will put the hand over the epigastrium. The local physical sensation is usually described as a "sinking." These are, probably, in most cases, referred sensations; but, probably, organic changes in the abdominal viscera, will provoke mental depression in the predisposed. It is, indeed, almost proverbial, that dyspepsia goes with melancholy, and sometimes with uncertainty of temper.

For what is called the physiology of the mind, the development of all kinds of sensations in cases of epilepsy, from the most impersonal (as of sight) to the most personal, the systemic, deserves serious consideration.

To show the importance of the systemic sensations, we will quote again from Lewes's "Problems of Life and Mind," p. 134. After remarking that "their immense superiority as *motors* has been singularly overlooked," he writes: "They make up by far the larger portion of our sentient material, since from them issue the emotions, sentiments, etc.; combined, indeed with the objective sensations, but subordinating these as means to their ends, inasmuch as we only see what interests us".—*Ibid.*

DESTRUCTION OF BRAIN SUBSTANCE WITHOUT FUNCTIONAL LESION.—

Prof. Porta, of Pavia, gives an account (*Archivio Italiano*, Nov., 1873; abstr. in *Psychiatr. Centralblatt*) of the case of a man who had received an injury of the skull, causing, as nearly as could be estimated, the complete disorganization of the upper right hemisphere. In spite of this extensive lesion, no measurable psychic or sensorial disturbance was observed; and at the end of eighteen months a partial hemiplegia of the left side only, remained. This was apparently somewhat improved by electrical treatment.

The same author reports another case of the *post-mortem* of a woman who had died of fever, without stupor, somnolence, or delirium, in whom the whole right side of the brain was found disorganized by suppuration, the only parts remaining intact being the cerebellum, the pons, the crus cerebelli, and the intraventricular portion.

From these facts, Prof. Porta holds that the brain is a double organ, consisting of two similar halves, one of which can do the duty of both; that is, that it is physiologically, as well as anatomically, double.

REFLEX PARALYSIS.—G. H. Roessingh (*Jour. de Med.*, Oct., 1873; abstr. in *Rev. des Sci. Méd.*)—"Among the paralyzes of the motor nerves, one is distinguished, which has received the name of reflex paralysis, because it was believed to have for its cause a morbid irritation of the sensory nerves.

In the majority of cases a rigorous anatomical examination always discloses pathological alterations, perhaps in the nervous centres—may be in the course of the nerve corresponding to the paralyzed parts—so that the name reflex paralysis is not applicable to it. For some cases, nevertheless, it has been impossible to account for the paralysis by any histological alterations; the source of the trouble, therefore, has to be sought by another way, in demonstrating that the disease in question might be produced by an irritation of the sensory nerves alone, and that such an irritation may cause an inflammation of the spinal cord, without its being necessary that its traces be discovered in the track of the nerve. It is therefore evident that the cause of the paralysis should be sought for in the primitive irritation of the sensory nerves."

Roessingh, with the collaboration of Prof. Rosenstein, repeated the experiments of Lewissou and Feinberg, on account of their pathological importance; but as their results differed totally from those of their predecessors, they felt compelled to publish them.

The author first gives the results of his experiments, made according to the method of Lewissou. The latter had always observed a paralysis consecutive to contusing or compressing various organs in the rabbit and the frog. In the majority of cases the posterior extremities were affected, whence he concluded that he had to do with a veritable reflex paralysis. In nine experiments, of which we pass by the details, made on rabbits and frogs, Roessingh did not once detect this pretended paralysis.

He then undertook a new series of experiments, according to the method of Feinberg. This investigator cauterized the sciatic nerve of rabbits, and found that the animals died, with a paralysis of the posterior extremities, with incontinence, cramps, hebetude, etc. As the cause of these symptoms, he found, at the autopsy, a myelitis, especially in the gray matter, slightly less marked in the white. None of the animals whose sciatic nerves were submitted, by Roessingh, to the action of various caustic agents, such as caustic potash, nitric acid, etc., were affected with the least trace of reflex paralysis. Microscopic examination revealed no lesion of the cerebrum, cerebellum, or of the spinal cord; and, further, different sections of the cord, subjected to the most careful examination, and compared with similar ones from a healthy animal, appeared perfectly sound.

ALCOHOLISM.—M. Magnan (*Gaz. Hebdom. Méd. et Chir.*, Nos. 46, 47, 1873; abstr. in *Rev. des Sci. Méd.*)—It is known that the prolonged influence of alcohol can develop in the system a duplex morbid action: 1. A tendency to fatty degenerations of the organs; 2. A tendency to chronic diffuse irritations, associated with the steatosis, but sometimes capable of an existence alone. According to the predominance of one or the other of these lesions, chronic alcoholism may lead to dementia (steatosis, or atheroma), or to general paralysis (diffuse interstitial sclerosis).

Among the troubles of motility and sensibility, there are to be remarked paralyzes of one side of the body, with diminution, or abolition, of general and special sensibility.

In consequence of a brusque apoplectic attack, or little by little, without

other phenomena than headache, dizziness, and numbness, with formication of one side of the body, the patients become aware of a muscular weakness: they drag their limbs, let objects drop from their hands; they may have embarrassment of speech, and change of features. The paralyzed arm generally presents a more marked tremor than the other; and, in one case, M. Magnan observed rhythmic movements, having an analogy to those of paralysis agitans. The whole of the paralyzed side presents an anæsthesia of the skin, the mucous membranes, and the deeper parts. The loss of sensibility is sometimes so complete that it extends to the touch, to tickling, pricking, temperature, and to the action of constant and induced currents. Sometimes it is incomplete, and can only be determined by the application of the compass of Weber. But it is necessary to know that the extension of the two points of the æsthesiometer is greater when the points of the compass are placed according to the axis of the limb—that is, according to the direction of the nerves—than when applied perpendicularly to this axis, or when the points are placed on distinct nervous branches, answering to two separate *foyers* of innervation in the cord.

The anæsthesia reaches the deeper-lying portions, the muscles; the muscular sense is enfeebled, and sometimes abolished. When the eyes are shut, the patient is not conscious of his own motions; he is able to walk in a rather straight line, but is easily drawn from it, without consciousness of the deviation, into a circular movement, when the insensible side is gently restrained. If an organ is touched, on the sound side—the nose, or the ear—the patient believes that he has himself executed the movement.

The anæsthetic members are, ordinarily, colder than the corresponding healthy ones; and in some cases the invalid is conscious of the chilliness, which may reach two, or even three, degrees centigrade. The anæsthesia is not limited to the skin; it extends to the mucous membranes, the conjunction of the eye-lids, the sclerotic, and even of the cornea; to the pituitary membrane, the mucous membrane of the tongue, the velum of the palate, the uvula; to the mucous membrane of the glans penis, the meatus urinaris; and to the margin of the anus, on the affected side.

Special sensibility is also affected in the sense of sight; a manifest enfeeblement is noted on the side attacked; the passage of a continued current through the head, or in its vicinity, produces no phosphenes in the eye of the anæsthetic side, while the other eye perceives them at the opening and closing of the current.

Besides the amblyopia, there exists, in some patients, an unilateral dyschromatopia; the sound eye can easily distinguish all colors, while the other confounds the composite colors, and even the different shades of the same color. Ophthalmoscopic examination reveals no lesions, except a little venous stasis, and peripapillary, and perivascular infiltration.

Enfeeblement or abolition of the senses of hearing, taste, and smell, are also observed.

Among hysterical individuals, hemianæsthesia is much more frequently observed on the left than on the right side. In alcoholism it occupies either side indifferently.

In that hemiplegia of sensibility and motion, the disturbances of mo-

tility may pass off rapidly, while the anæsthesia persists; at other times the two kinds of trouble may cease simultaneously.

The patients, like the subjects of chronic alcoholism, suffer from headache, dizziness, buzzing in the ears, chills, and cramps in the members, more pronounced on the paralyzed side. The mental faculties are also ordinarily enfeebled.

These troubles of sensibility show themselves not only in alcoholism, they may be produced by a hæmorrhage, a softening, or a sclerosis, following a material alteration. In hysteria, on the contrary, this assemblage of symptoms can only be a simple functional trouble, transient, without any appreciable material lesion.

But what are the regions of the nervous centres which preside over the free exercise of the general and special sensibility? According to Longet and Vulpian, the centre of the perception of sensory impressions is in the annular protuberance, which, according to the last-named experimenter, seems also to preside over the gustatory and auditory sensations. But the mere lesion of this perceptive centre does not suffice to explain the loss of smell and of sight observed in our subjects of chronic alcoholism.

According to the theory of Todd and Carpenter, the centre for the perception of tactile impressions resides in the optic thalamus; it is there that the sensory impressions are transformed into sensations.

According to the author of this paper, it is the external and superior portion of the optic thalamus, the nucleus lenticularis, and the radiant crown, which are the parts involved in these cases of hemianæsthesia.

CHRONIC ALCOHOLISM, ENDING IN GENERAL PARALYSIS.—Dr. Gambus (*These de Paris*, 1873; abstr. in *Rev. des Sci. Med.*)—Chronic alcoholism may terminate either in dementia, or in general paralysis. It is this latter method of termination that M. Gambus has attempted to make known. He first gives the opinion of the greater number of his predecessors, who, in certain cases, accord to excesses in drinking a principal part in the production of general paralysis; then, supporting his position with the facts already known in regard to the pathological physiology of alcoholism, and with new clinical facts detailed in his thesis, the author proves that, under the influence of alcoholic drinks, two orders of lesions have a tendency to occur: 1. Fatty degeneration of the organs and vascular atheroma; 2. Chronic diffuse interstitial inflammations, which may occur in various organs (the liver, the kidneys, the nervous centres), but which, when it reaches the brain, gives birth to the usual lesions of general paralysis.

The author reports many cases, in which he follows, step by step, the progressive march of alcoholism toward general paralysis. These observations, collected with care, are of interest not only in the special aspect which the author gives them, but also for the study of certain points relative to the pulse, to temperature, and to anatomical lesions in the patients.

Dr. J. F. Troyon (*These de Paris*, 1873; abstr. in *Rev. des Sci. Med.*) devotes the first part of his Thesis to a study of the pathological physiology

of alcoholism. After examining the diverse theories which have been proposed as to the action of alcohol, he relates comparative experiments on the action of alcohol and absinthe. As a clinical demonstration, agreeing with experimental physiology, he cites two cases of alcoholism with absinthism, in men in which, besides the usual accidents of alcoholism, there were added epileptic attacks, under the influence of the abuse of absinthe.

The author, after broadly sketching the general characters of alcoholism, gives a report of eight cases observed at the Bicetre. *A propos* to these, he discusses the degree of responsibility of the subjects of disease from the use of alcohol, and as all the patients in question were subject to hallucinations and delirium, the author naturally concludes that they are irresponsible. In these conditions the medico-legal question is, generally, easily answered; but the difficulty resides, especially, in the estimation of the acts committed by the individuals in a state of drunkenness.

HYDROPHOBIA.—*L'Union Medicale*, of Feb. 14, reproduces from the *Recueil de Med. Veterinaire*, a letter from M. Fitte, Veterinary Surgeon at Villa Bigorre, on the spontaneous production of hydrophobia in the dog. M. Fitte's observation seems to prove that unsatisfied sexual excitement may be the cause of spontaneous hydrophobia, as the case related by him occurred under his own eye. The disease was immediately consecutive to the cause; the dog had not been bitten, and no case of madness had been known in the place for more than a year.

HANDWRITING OF ATAXICS.—At the *Seance* of the *Societe de Biologie*, Feb. 7, M. Onimus made the following communication (reported in the *Gaz. Med. de Paris*, Feb. 21):

"We have observed, in examining the handwriting of ataxic patients, phenomena analogous to those exhibited in the lower limbs.

"When the arms are slightly affected, the chirography, with the eyes open, scarcely differs from that of persons in health; but when the eyes are closed we have observed a great uncertainty in the writing.

"It is true that, with every one, the handwriting is less correct and plain when it is done with the eyes closed; but the special characteristic of the ataxics, is the difficulty in making the rounded parts of the words—the c, the a, the o, the l, the e, are angular, and formed by straight lines, instead of curves more or less extended.

"We might say that there no longer existed in the movements of the fingers, the synergy of the normal state.

"The handwriting varied in other respects, according to the degree of the ailment. In the first period, nothing distinctive can be noticed when the eyes are open; and it is only when they are closed that we remark a kind of inco-ordination in the formation of the letters.

"In the more advanced stages these characters exist, even with the eyes open, and are specially increased when the eyes are shut.

"In these cases we notice, further, that each letter is made, so to speak, with a jerk, and that the hand has difficulty in limiting the trace. In the p, for example, the descending line never ends in a neat termination; and we may say that there is a kind of impulse to continue. Also, at this period, the patients are hardly ever able to use the pen, but make use of the pencil, because the point of the pen catches every moment, and sputters, to use a common expression.

"At last, when the ataxy of the arms is very pronounced, the writing of a single word with the eyes closed, becomes impossible, and we obtain only a set of traces, unformed and without order.

"These different characteristics are seen in a series of *fac similes* of handwriting, which we have collected from various ataxic persons.

"We see that the modifications in the movements of the arms are analogous to those of the limbs; for one sees in the lower limbs, according to the development of the disease, first a slight titubation, and then a complete failure; and in the upper members, first a slightly modified penmanship, and afterwards a complete inability to form a single word.

"We would still remark that these facts come under the same rules as those we have shown to hold good for the formation of language and writing, as in almost every case the signature is correct, even when the eyes are shut.

"Further, when a person is in the habit of writing without stopping, and placing the dot over the i when the word is complete, the writing is much more altered when he attempts to dot the i's as they are written.

"On the other hand, and for the same reason, there is no trouble with those persons who put the dots on the i's only when they are made to write the words without stopping.

"So, for the word *electricity*, which contains two i's, we notice that the c and the t are badly formed if we ask the patient to write the word without dotting the letter. The changes in this case appear even with the eyes open, but become much more marked when they are shut."

c.—THERAPEUTICS OF THE NERVOUS SYSTEM AND MIND.

PHYSOSTIGMIA.—Dr. J. Q. A. Hudson (*Southern Med. Record*, December, 1873) gives a paper on The Physiological Action and Therapeutic Uses of the Calabar Bean. His summary of its physiological action on man is as follows:

1. "It lessens the reflex action of the spinal cord, diminishing or destroying this function, according to the dose given. It is a perfect spinal paralyzer."